PATHOLOGY.

33. **Über Degenerationsherde in der weissen Substanz des Rückenmarks by Leukämie** (The Spinal Cord in Leukemia). M. Nonne (Deutsche Zeitschr. für Nervenheilk., 10, 1897, p. 167).

To Nonne we are already indebted for much valuable information regarding the changes in the spinal cord induced by pernicious anemia and the symptoms resulting therefrom. He now contributes two cases of cord disease caused by leukemia, a knowledge of which seems heretofore to have been confined to a single case reported by W. Müller (Inaugural Thesis, Berlin, 1895).

The first case was a man aged 59, whose symptoms began six months before death with general debility, dizziness and anorexia. On examination two months after the inception of the disease, the liver and spleen were found to be greatly enlarged, the red blood corpuscles numbered 1,896,000, the white 630,000 to the cubic millimeter, and the percentage in hemoglobin was only 40. The bones were nowhere tender to pressure, and glandular enlargement was limited to a few glands in the groin and axillæ, some of which were as large as a filbert. Sensation, motion and the reflexes were normal. While under observation the number of red blood corpuscles increased slightly, and the spleen diminished in size, but the patient suffered from large intermuscular hemorrhages and died of marasmus and catarrhal pneumonia. Miscroscopic examination of the cord revealed small myelitic foci or, more strictly speaking, foci of acute or subacute nerve degeneration, scattered through the white substance from the upper lumbar region to the medulla oblongata. Some of these degenerated points were large enough to be seen by the naked eye, and all the stages of degeneration were to be observed from a simple puffed-up appearance of the myeline sheath and swelling of the axis cylinder, to segmentation, breaking up and disappearance of the nerve fibres with compensatory hypertrophy of the neuroglia. Changes in the vessels, hemorrhages, cellular infiltration and extravasation of leucocytes were entirely wanting, and the gray matter throughout with the nerve roots was absolutely normal.

The second patient, a man aged 31, noticed first some enlargement of the abdomen, and during the next two months marked general weakness developed. Irregular febrile movement then appeared, and the patient was admitted to the hospital where he was found to have an enormous spleen, reaching to the right inguinal region. The lymphatic glands were not enlarged, and the bones were not noticeably tender, but examination of the blood showed a great increase of white corpuscles, viz., 1,940,000 red, and 910,000 white, to the cubic millimeter. Objective symptoms of involvement of the nervous system were wanting. The patient died eight days after admission to the hospital and four after the appearance of the first symptoms noticed. A careful microscopic examination of the spinal cord revealed lesions identical in character, size and distribution with those of the first case, the gray matter, nerve roots and vessels being intact. It should be added, however, that the Nissl method was not employed as the material was hardened in Müller's fluid, and hence minute changes in the nerve cells, were not to be positively excluded. Patrick.

34. **Ein Beitrag zur Kenntniss der im Verlaufe der perniciösen Anämie beobachteten Spinalerkrankungen** (Changes in the Gray Matter of the Spinal Cord in Pernicious Anemia). Teichmüller (Deutsche Zeitschr. für Nervenheilk., 8, 1896 p. 385).

The author reports a case of pernicious anemia with arteriosclerosis, chronic enteritis, paresthesia, and increased knee-jerk. On post-mortem, small hemorrhages were found in the corpora quadrigemina and corpora striata. Microscopic examination showed changes such as have been described in the posterior columns, and, in addition, hemorrhages in both the white and gray matter, with degeneration in the anterior and lateral columns. The author combats the idea that the changes in the cord in pernicious anemia represent a combined system of disease, and looks on the changes of the gray matter as of chief importance.

The paper is illustrated with photo-micrographs, and a bibliography is included.

VOGEL.

35. THE SPINAL CORD IN PERNICIOUS ANEMIA. Clarke (British Medical Journal, 1897, p. 325).

The author reports two cases. In the first, the patient being a woman of 46 years, the changes in the cord were substantially those hitherto described as occurring in pernicious anemia; i. e., degeneration of the posterior columns with some involvement of the lateral columns. The posterior column degeneration was very intense, included most of the columns of Goll and Burdach and extended from the highest to the lowest point of the cord. Lateral column changes were limited to the pyramidal tract of one side in the lower dorsal and upper lumbar regions; the direct cerebellar tract remained intact.

Changes in the second case, a man of 38, were decidedly exceptional, the degeneration of white matter being restricted to small symmetrical patches just external to the gray matter between the anterior and posterior horns. These areas were also limited in longitudinal extent, corresponding to about one cord segment. In the gray matter were marked changes which seemed to be contrary to the rule.

" The vessels were intensely injected, and there were many hemorrhages, varying in size, but all microscopic, into the grey matter. These hemorrhages were distributed chiefly about the central parts of the gray matter, posterior part of the anterior cornua and neighborhood of the commissure. Besides the hemorrhages there were in places small areas in which the gray matter was granular, partly disintegrated or sclerosed. The nuclei of the glia cells were either normal or slightly increased in number.

Certain of the nerve cells of the anterior cornua were swollen, opaque and homogenous, their nuclei obscured; others were highly granular and deeply pigmented, and a few appeared small and shrunken, but the large majority appeared normal. The walls of the small vessels were much thickened, and very many showed hyaline change. In places the anterior fissure was broadened by the distended arterial branches. The central canal was blocked. These changes in the gray matter were judged to be of fairly recent occurrence, and not of old standing, and were most marked in the upper dorsal region. No hemorrhages were noticed in the other organs post mortem."

PATRICK.

36. ANATOMISCHE UND EXPERIMENTELLE UNTERSUCHUNGEN ÜBER DIE RÜCKENMARKSVERÄNDERUNGEN BY ANÄMIE. (Anatomical and Experimental Studies in the Changes of the Spinal Cord in Anemia). G. V. Voss (Deutsches Archiv für klin. Med., 58, 1896, p. 489).

By the injection of such agents as pyrodin, glycerin, pyrogallol, and tolylendiamin, the author induced an artificial anemia, which, although not of the genuine pernicious form, still presented the fol-